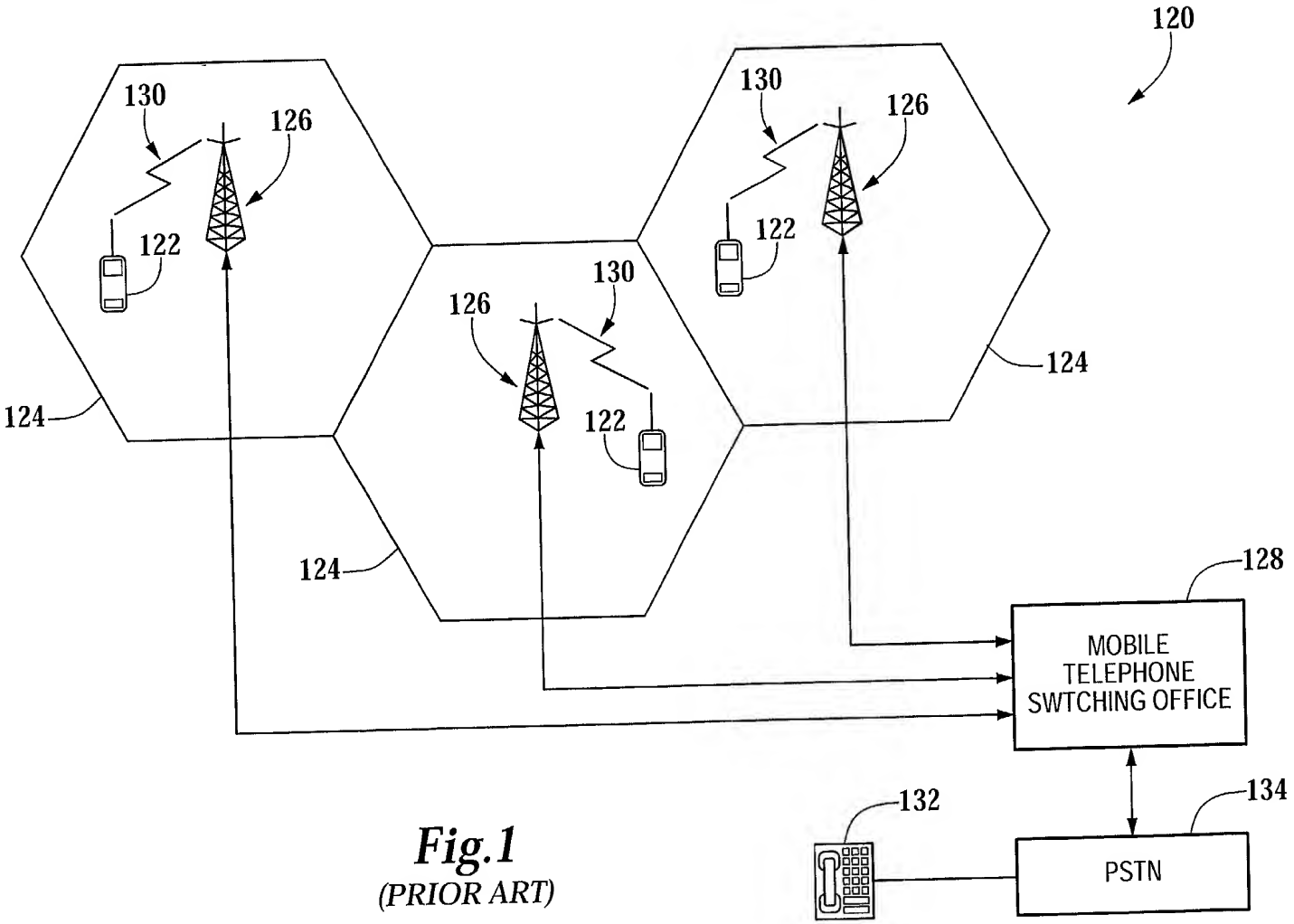

Fig.1
(PRIOR ART)

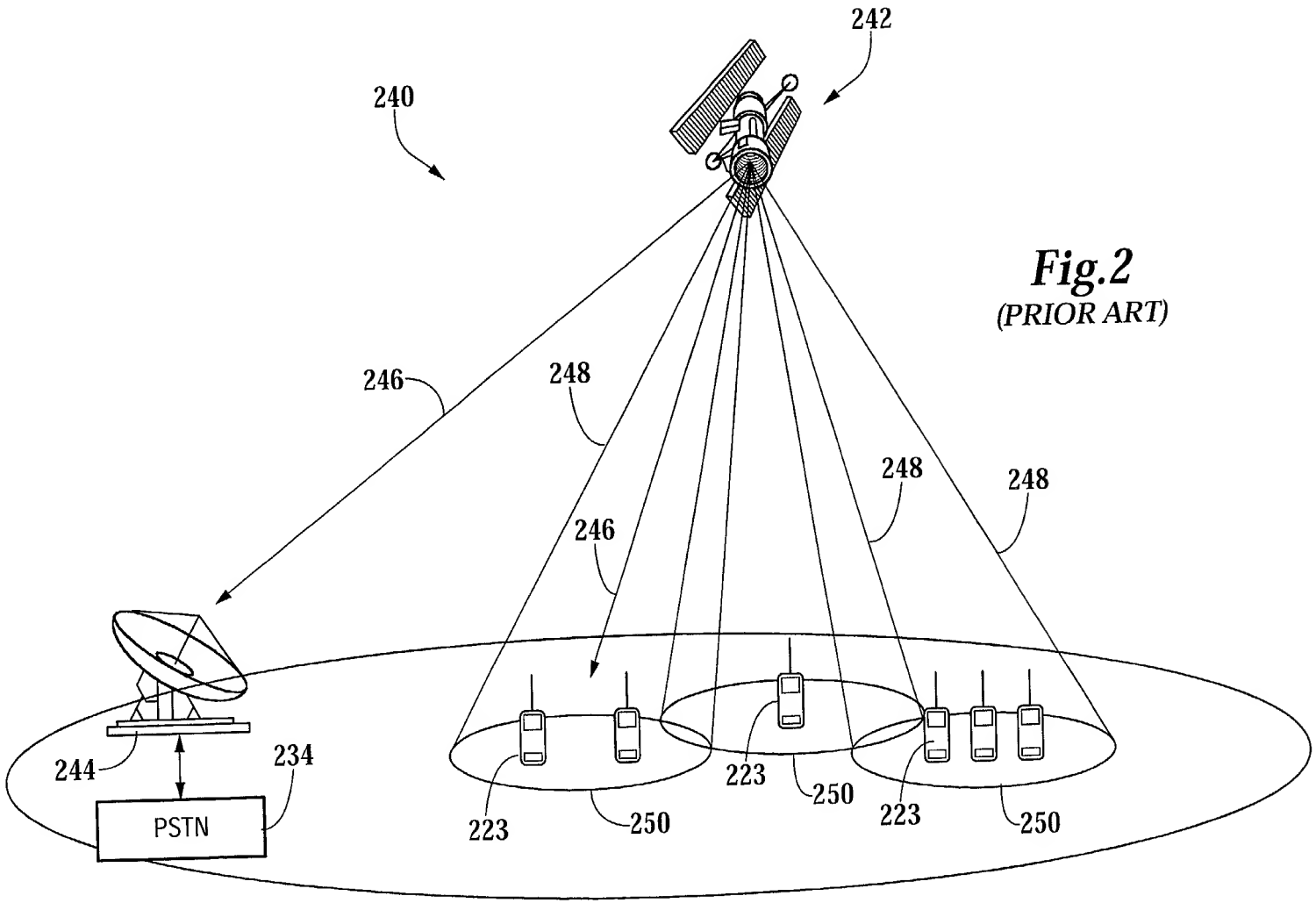

Fig.2
(PRIOR ART)

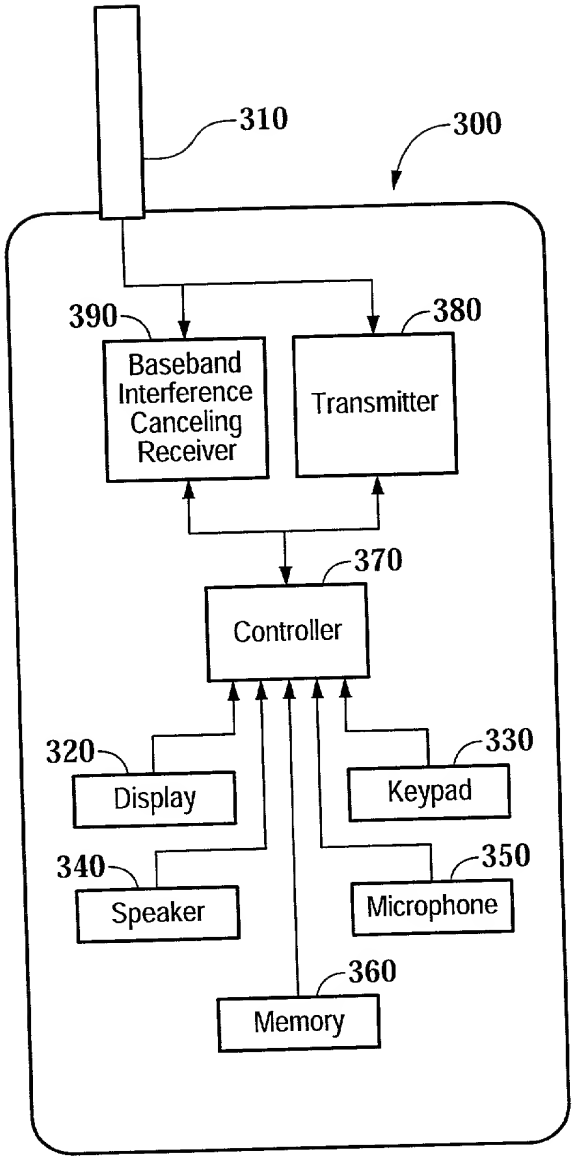
310
300
390
Baseband Interference Canceling Receiver
380
Transmitter
370
Controller
320
Display
330
Keypad
340
Speaker
350
Microphone
360
Memory

Fig.3

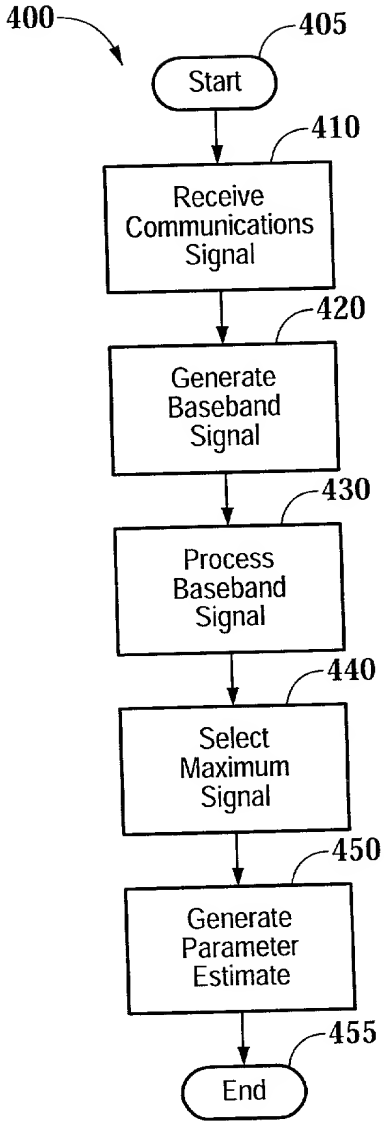
400
405
Start
410
Receive Communications Signal
420
Generate Baseband Signal
430
Process Baseband Signal
440
Select Maximum Signal
450
Generate Parameter Estimate
455
End

Fig.4

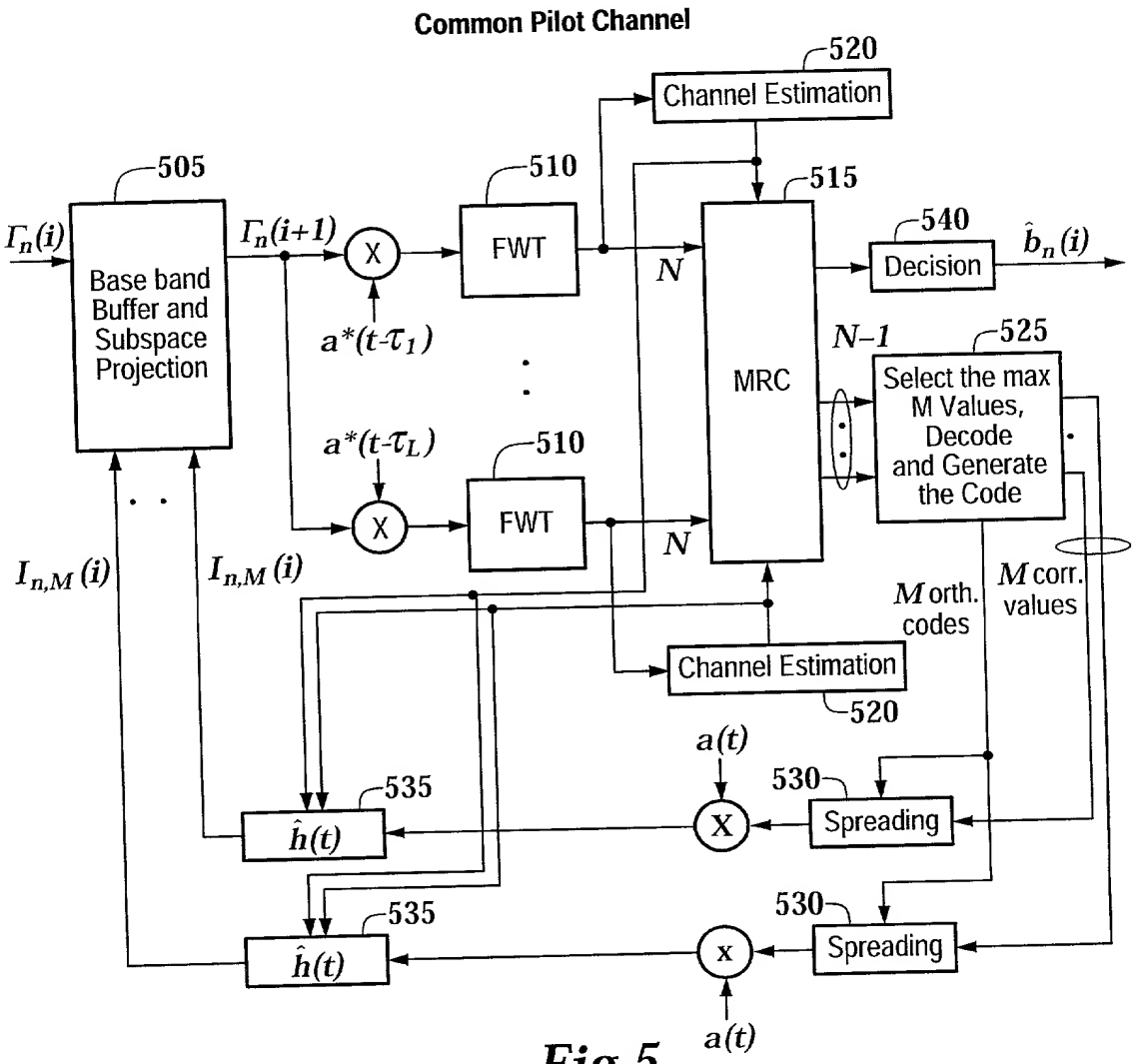
Common Pilot Channel
520
Channel Estimation
505
510
515
$\Gamma_n(i)$
$\Gamma_n(i+1)$
X
FWT
540
$\hat{b}_n(i)$
Base band Buffer and Subspace Projection
$a^*(t-\tau_1)$
N
Decision
N-1
525
MRC
Select the max M Values, Decode and Generate the Code
$a^*(t-\tau_L)$
510
FWT
N
$I_{n,M}(i)$
$I_{n,M}(i)$
M orth. codes
M corr. values
Channel Estimation
520
a(t)
530
535
$\hat{h}(t)$
X
Spreading
530
535
$\hat{h}(t)$
x
Spreading
a(t)

Fig.5

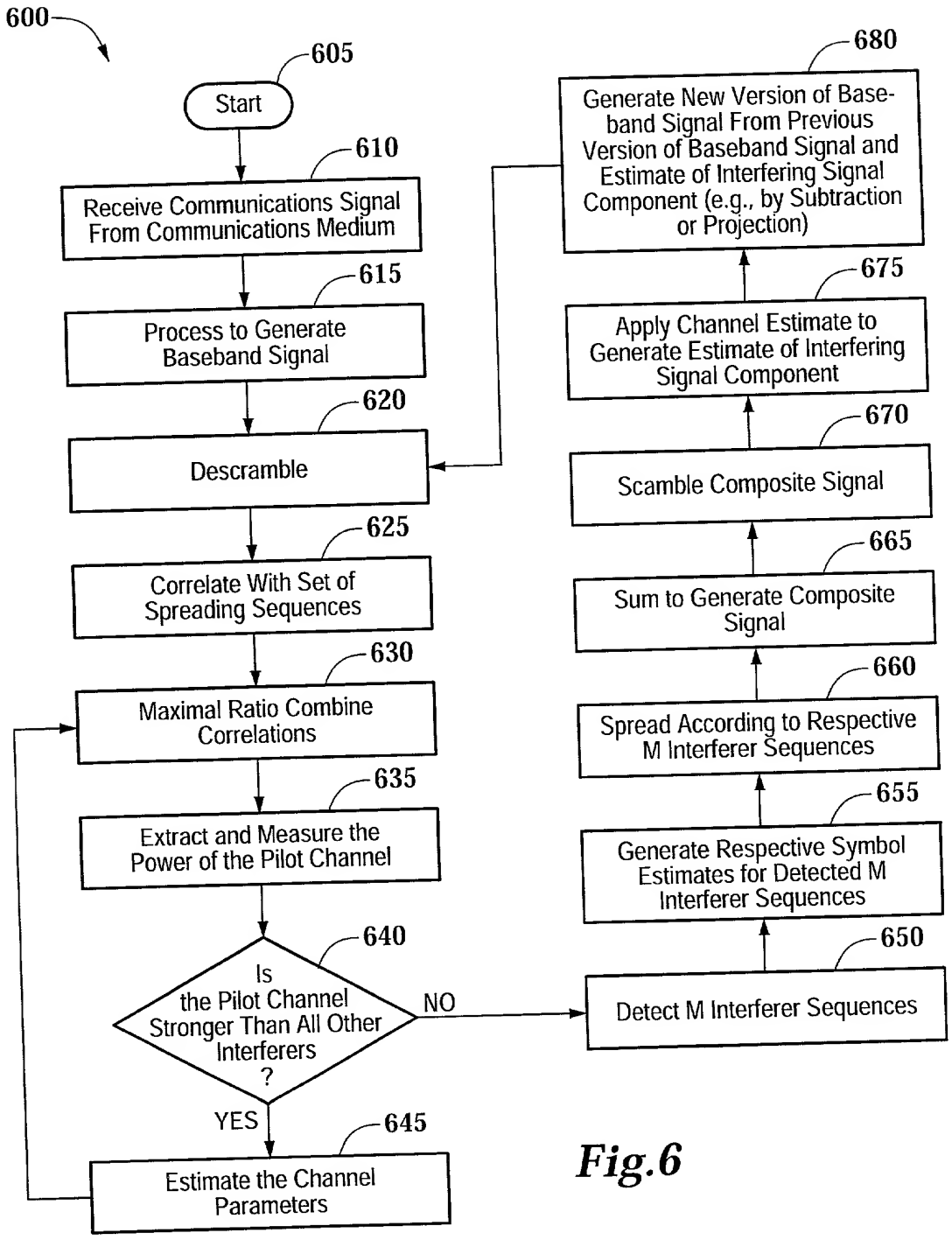
600
605
Start
610
Receive Communications Signal From Communications Medium
615
Process to Generate Baseband Signal
620
Descramble
625
Correlate With Set of Spreading Sequences
630
Maximal Ratio Combine Correlations
635
Extract and Measure the Power of the Pilot Channel
640
Is the Pilot Channel Stronger Than All Other Interferers ?
YES
NO
645
Estimate the Channel Parameters
650
Detect M Interferer Sequences
655
Generate Respective Symbol Estimates for Detected M Interferer Sequences
660
Spread According to Respective M Interferer Sequences
665
Sum to Generate Composite Signal
670
Scamble Composite Signal
675
Apply Channel Estimate to Generate Estimate of Interfering Signal Component
680
Generate New Version of Baseband Signal From Previous Version of Baseband Signal and Estimate of Interfering Signal Component (e.g., by Subtraction or Projection)

Fig.6

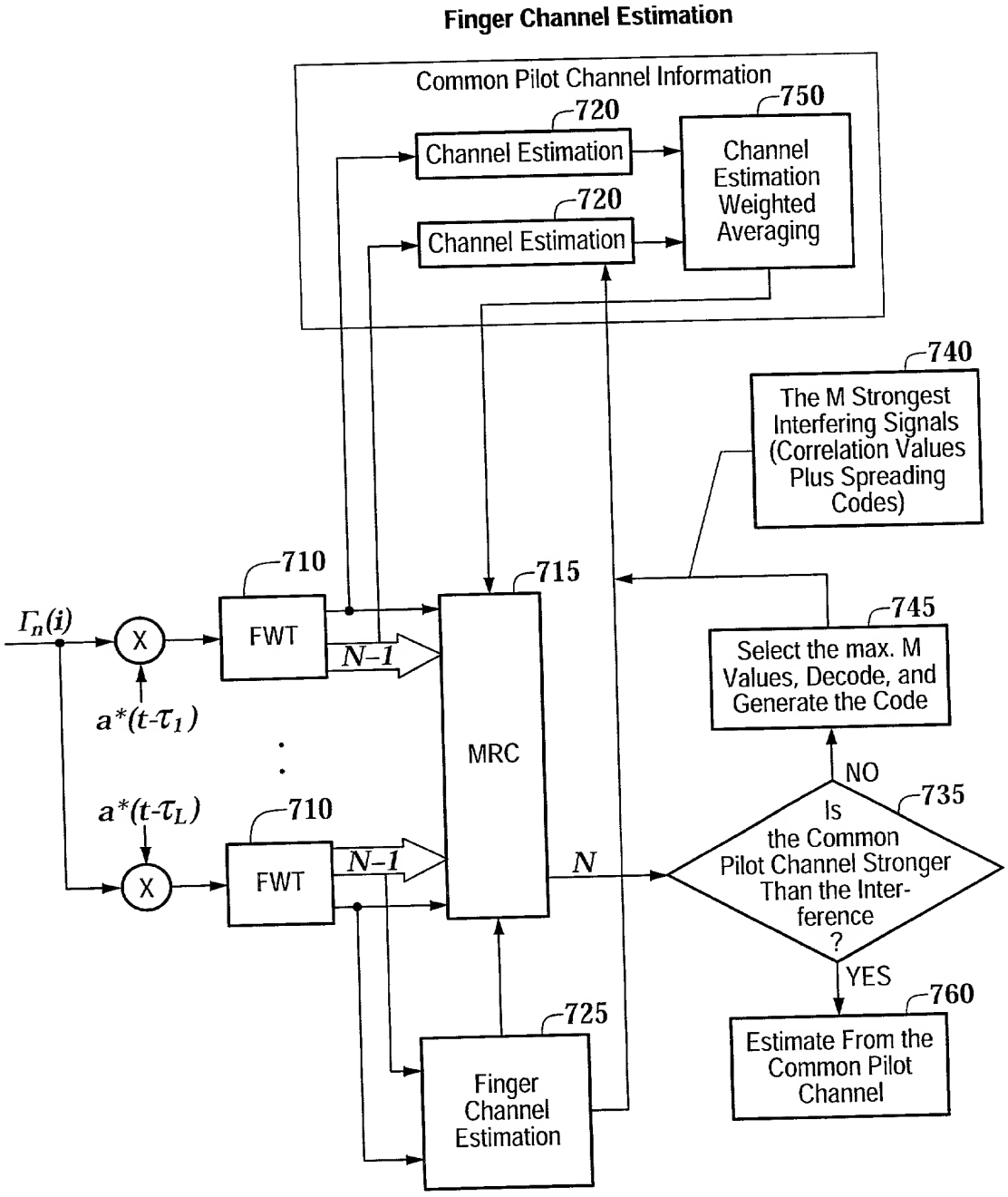
Finger Channel Estimation
Common Pilot Channel Information
720
Channel Estimation
720
Channel Estimation
750
Channel Estimation Weighted Averaging
740
The M Strongest Interfering Signals (Correlation Values Plus Spreading Codes)
710
715
$\Gamma_n(i)$
X
FWT
N–1
$a^*(t-\tau_1)$
MRC
$a^*(t-\tau_L)$
710
X
FWT
N–1
N
745
Select the max. M Values, Decode, and Generate the Code
NO
735
Is the Common Pilot Channel Stronger Than the Interference ?
YES
760
Estimate From the Common Pilot Channel
725
Finger Channel Estimation

Fig.7

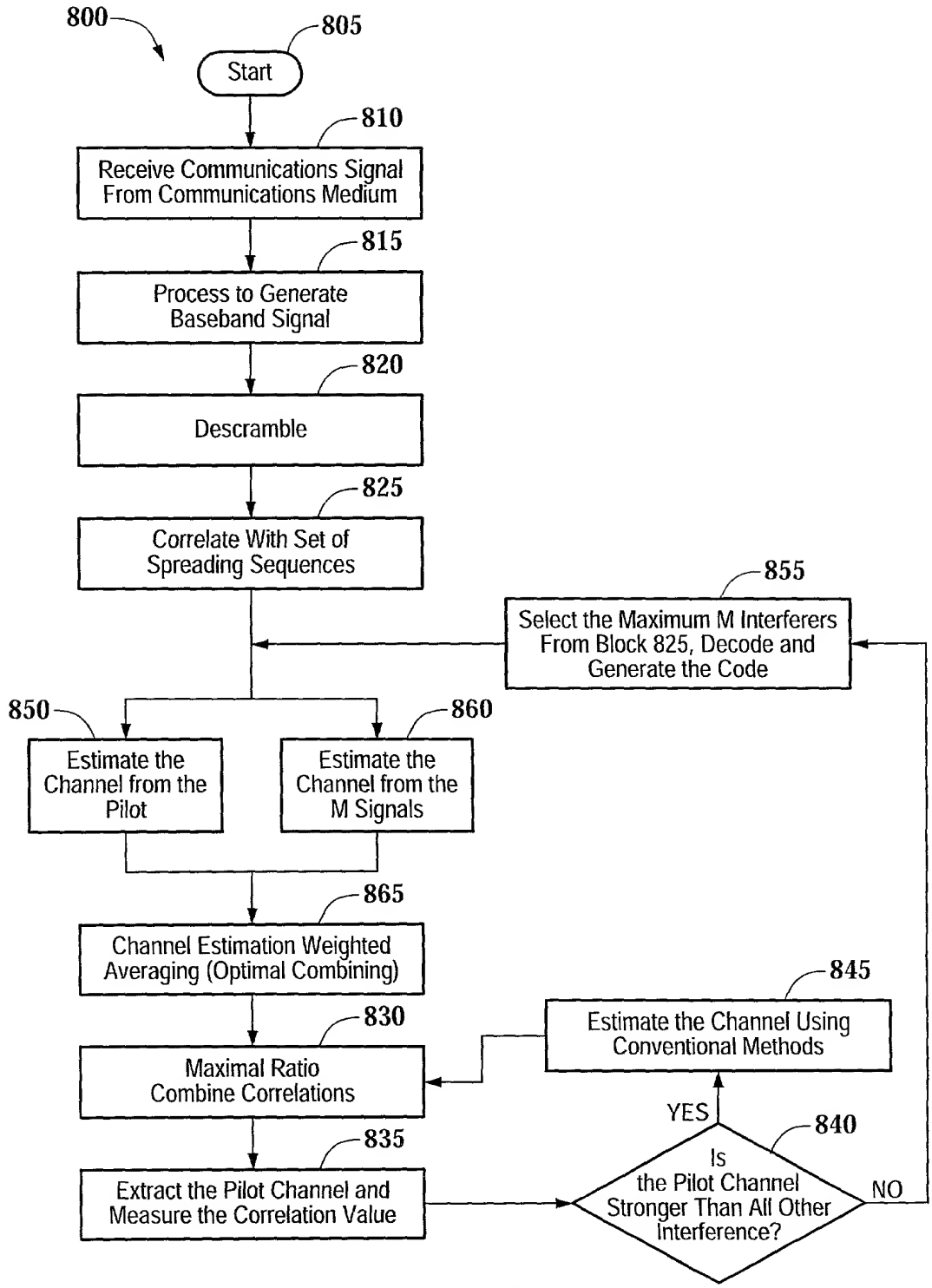
800
805
Start
810
Receive Communications Signal From Communications Medium
815
Process to Generate Baseband Signal
820
Descramble
825
Correlate With Set of Spreading Sequences
855
Select the Maximum M Interferers From Block 825, Decode and Generate the Code
850
Estimate the Channel from the Pilot
860
Estimate the Channel from the M Signals
865
Channel Estimation Weighted Averaging (Optimal Combining)
845
Estimate the Channel Using Conventional Methods
830
Maximal Ratio Combine Correlations
YES
840
Is the Pilot Channel Stronger Than All Other Interference?
NO
835
Extract the Pilot Channel and Measure the Correlation Value

Fig.8